

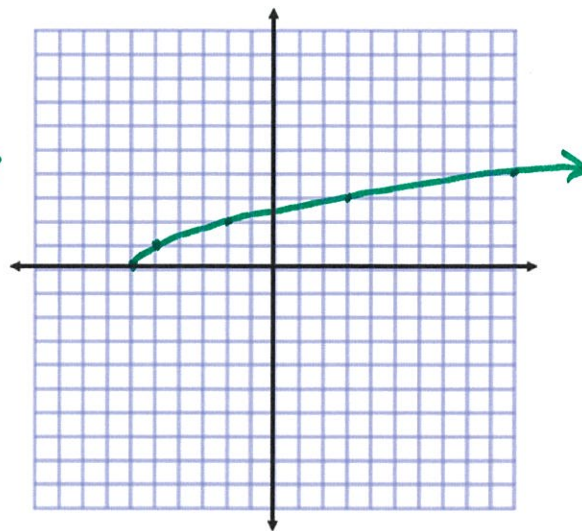
Name: *Solutions / Answers*

Directions:

1. Graph each function neatly and carefully.
2. Write a brief but concise description of each transformation.

1. $f(x) = \sqrt{x+6}$ or $f(x) = (x+6)^{\frac{1}{2}}$

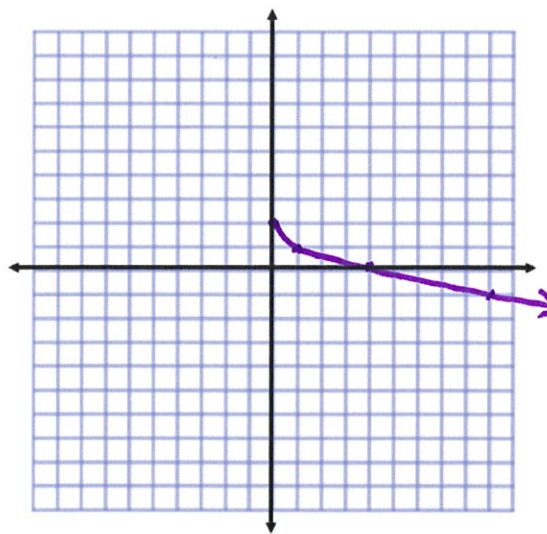
1. horizontal shift left six units



2. $f(x) = -\sqrt{x} + 2$ or $f(x) = -(x)^{\frac{1}{2}} + 2$

1. reflection in x-axis

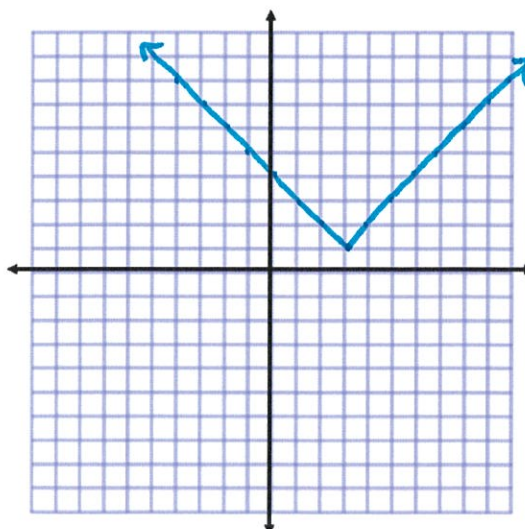
2. vertical shift up 2 units



3. $f(x) = |x-3| + 1$

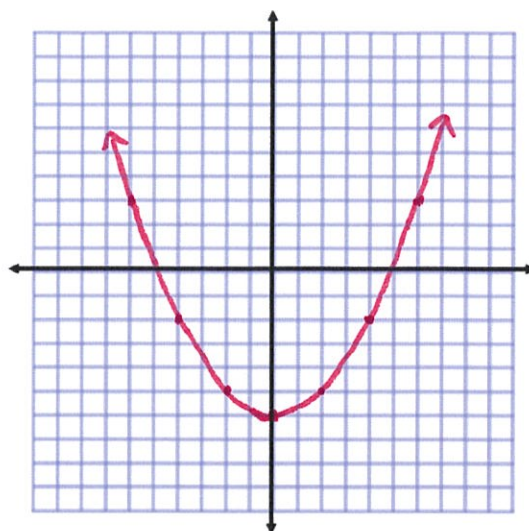
1. horizontal shift right 3 units

2. vertical shift up 1 unit



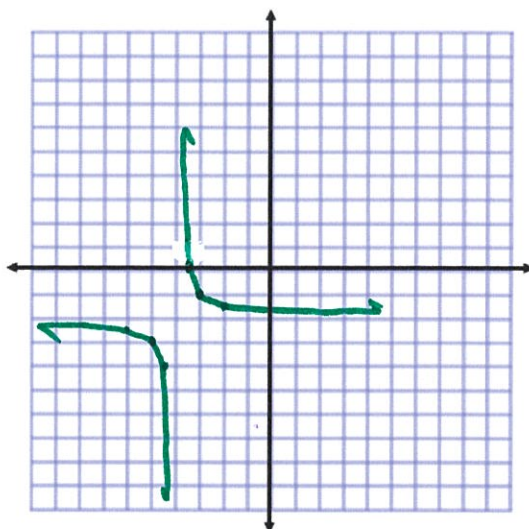
4. $f(x) = \left(\frac{1}{2}x\right)^2 - 6$

1. vertical stretch by factor of 2
2. vertical shift down 6 units



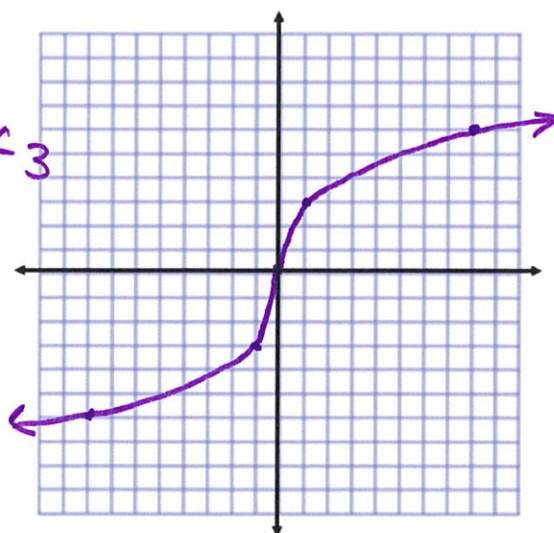
5. $f(x) = \frac{1}{x+4} - 2$

1. horizontal shift 4 units left
2. vertical shift 2 units down



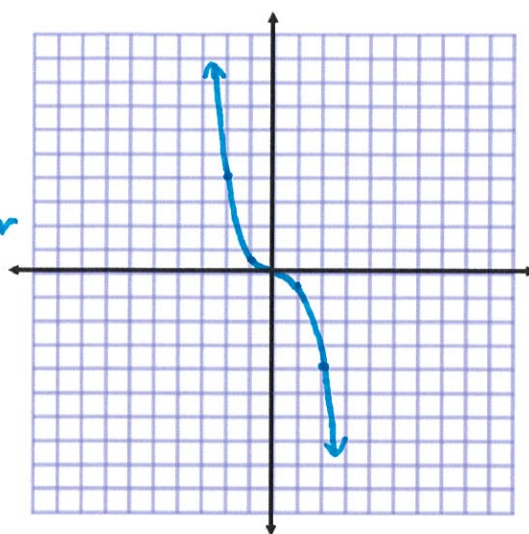
6. $f(x) = 3\sqrt[3]{x}$ or $f(x) = 3(x)^{\frac{1}{3}}$

1. vertical stretch by a factor of 3



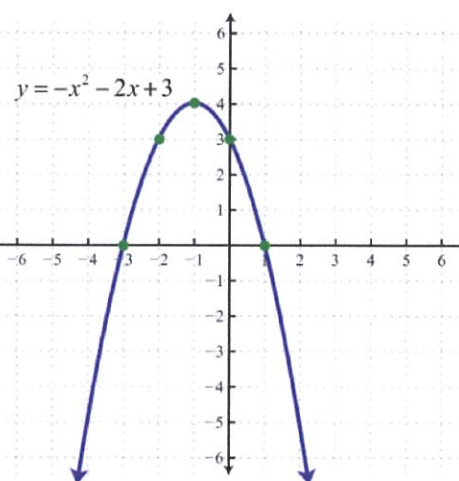
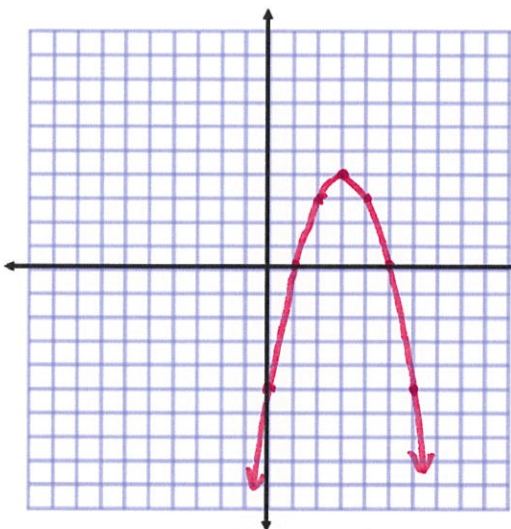
7. $f(x) = \frac{1}{2}(-x)^3$

1. reflection in y-axis
2. Vertical compression by factor of 2



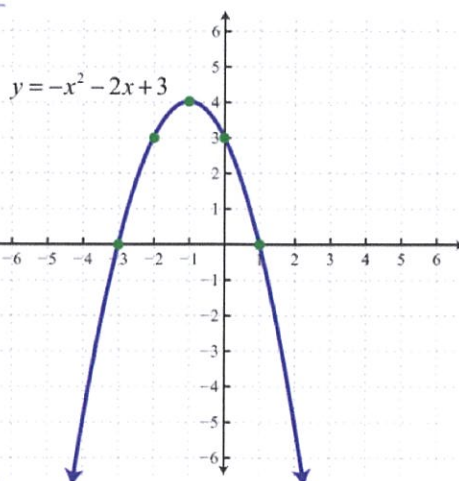
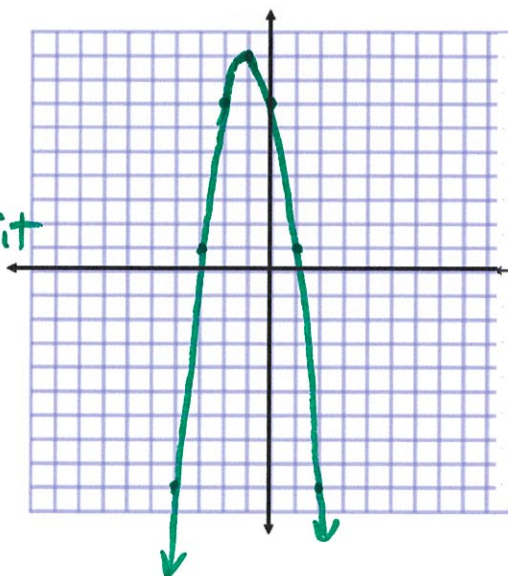
8. $T(x) = f(x-4)$

1. horizontal shift right 4 units



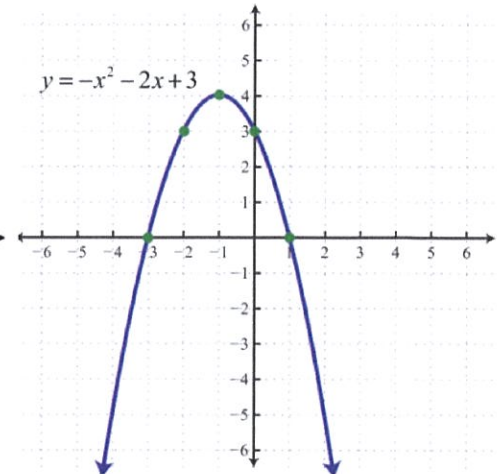
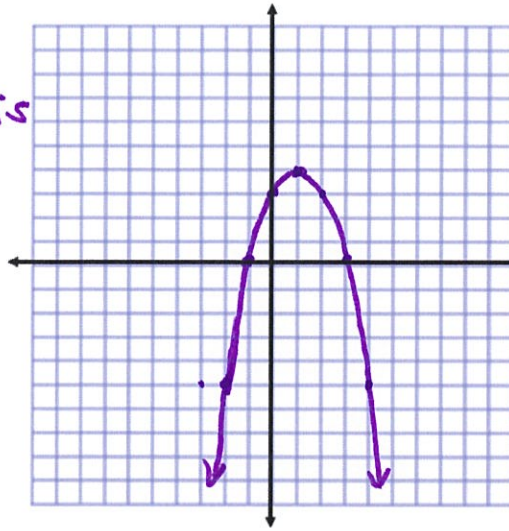
9. $T(x) = 2f(x) + 1$

1. Vertical stretch by a factor of 2
2. Vertical shift up 1 unit



$$10. T(x) = f(-x)$$

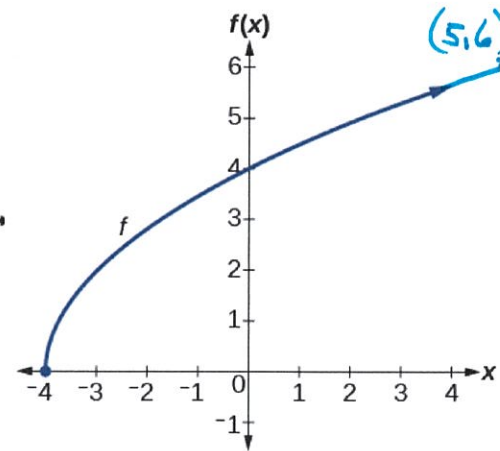
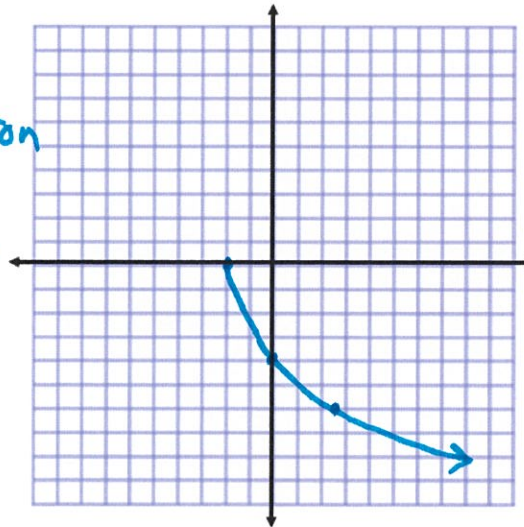
1. Reflection in y-axis



$$11. T(x) = -f(2x)$$

1. horizontal compression by a factor of 2

2. Reflection in x-axis



$$12. T(x) = |f(x)| - 2$$

1. All points below the x-axis are reflected above the x-axis

2. Vertical shift down 2

